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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/523,604

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EXAMINER

RALEIGH, DONALD L

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/523,604	Applicant(s) VERES ET AL.	
	Examiner DONALD L. RALEIGH	Art Unit 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>02/04/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claims 1-17 are pending in the instant application.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1,3 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Rebh (US PG Pub. NO. 2003/0063052).

Regarding Claim 1, Rebh discloses a method of forming an OLED element (abstract, line 1 (electroluminescent display) or display having two or more OLED layers (Paragraph [0038] discloses several layers) , which method comprises providing a blocking layer (58, dielectric, line 8) by printing with an ink ([0038], lines 2 and 8) in a desired pattern between two of the OLED layers (the

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dielectric (58) is between conductors (56 and 60)(lines 7-9), whereby, in use, conduction across the OLED element or display is reduced (dielectrics reduce conduction) in the area of the pattern.

Regarding Claim 3, Rebh discloses, at least in Figure 4, a method of forming an OLED element or display wherein the blocking layer (dielectric (54)) is located between an electroluminescent layer (phosphor is an el layer) and either an anode (60) or cathode of the OLED element or display.(Figure 4 shows this).

Regarding Claim 16, Rebh discloses an OLED element or display obtainable by a method of claim 1. (abstract, line 1 (electroluminescent display))

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rebh in view of Pennaz (US Patent No. 6,922,020).

Regarding Claim 2, Rebh fails to exemplify the method of forming an OLED element or display wherein the ink is coloured to increase contrast.

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In the same field of endeavor, Pennaz teaches a method of forming an OLED element or display wherein the ink is coloured to increase contrast. (Column 7, lines 12-13 using bluish green and white ink.) in order to emit white light or a desired color (Col.7, lines 5-8)

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the coloured ink as taught by Pennaz into the method of forming an OLED element as taught by Rebh in order to emit white light or a desired color .

Claims 4, 6-8 , 10-11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rebh in view of Morii (US Patent No. 7,300,686.)

Regarding Claim 4, Rebh fails to exemplify the method of forming an OLED element or display wherein the blocking layer pattern comprises a multiplicity of discrete points of ink.

In the same field of endeavor, Morii teaches in Column 7, lines 2-6, ink-jet printing of an OLED element (electrode).

One of ordinary skill in the art, would recognize that the multiplicity of discrete points are simply inherent aspects of the ink-jet printing process.

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the blocking layer comprised of a multiplicity of discrete points of ink as taught by Morii into the forming of an OLED element of Rebh because this is an inherent aspect of the ink-jet printing process.

Regarding Claim 6, Rebh fails to exemplify the method of forming an OLED element or display wherein the pattern comprises regions with different densities of the discrete points.

In the same field of endeavor, Morii teaches in Column 7, lines 2-6, ink-jet printing of an OLED element (electrode).

One of ordinary skill in the art, would recognize that the different densities of discrete points are simply an inherent characteristic of the ink-jet printing process.

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the pattern comprising regions with different densities of the discrete points as taught by Morii into the forming of an OLED element of Rebh because this is an inherent characteristic of the ink-jet printing process.

Regarding Claims 7 and 8, Rebh fails to exemplify the method of forming an OLED element or display wherein the ink is insoluble in the medium used to deposit underlying and/or overlying OLED layers.

In the same field of endeavor, Morii teaches in Column 8, lines 25-32 using an insoluble ink and solvent that will not re-dissolve the layer beneath it.

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the insoluble ink of Morii into the method of forming an OLED as taught by Rebh in order not to re-dissolve the layer beneath it.

Regarding Claim 10, Rebh fails to exemplify the method of forming an OLED element or display wherein the ink is deposited by a direct printing technique selected from ink-jet printing, screen printing, microcontact printing, stamping, soft lithography or electrophotographic printing using a liquid or solid toner.

In the same field of endeavor, Morii teaches in Column 7, lines 2-6 ink-jet printing of an OLED element (electrode) due to the refinement and ease with which the patterning can be accomplished (Column 1, lines 29-32).

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the ink-jet printing as taught by Morii into the method of forming an OLED as taught by Rebh due to the refinement and ease with which the patterning can be accomplished .

Regarding Claim 11, Rebh fails to exemplify the method of forming an OLED element or display wherein the ink is deposited by ink-jet printing.

In the same field of endeavor, Morii teaches in Column 7, lines 2-6 ink-jet printing of an OLED element (electrode) due to the refinement and ease with which the patterning can be accomplished (Column 1, lines 29-32).

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the method of ink-jet printing as taught by Morii into the method of forming an OLED as taught by Rebh due to the refinement and ease with which the patterning can be accomplished.

Regarding Claim 14, Rebh fails to exemplify the method of forming an OLED element or display wherein the OLED layer(s) to be deposited are independently applied by a coating or printing technique selected from solution-, spin-, spray-, dip-, web-, die- or evaporation coating; electroless deposition and ink- jet printing, screen printing, microcontact printing, stamping or soft lithography.

In the same field of endeavor, Morii teaches in Column 7, lines 2-6 ink-jet printing of an OLED element (electrode) due to the refinement and ease with which the patterning can be accomplished (Column 1, lines 29-32).

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the ink-jet printing of Morii into the method of forming an OLED as taught by Rebh due to the refinement and ease with which the patterning can be accomplished .

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rebh in view of Morii and further in view of Narang (US Patent No. 6,855,378).

Regarding 5, Rebh fails to exemplify the method of forming an OLED element or display wherein the discrete points of ink are less than about 100 μm in size.

In the same field of endeavor, Narang teaches in Column 2, lines 23-27 the ink printing of particles of 3-50 μm in size in order to be able to print many

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layers on top of one another (Column 2, lines 18-19). Even though Narange teaches that the conduction characteristics are not excellent, the method is available.

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the printing of particles in the above range into the method of forming an OLED as taught by Rebh in order to be able to print many layers on top of one another.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rebh in view of Hyman (US PG Pub. No. 2003/0035917).

Regarding Claim 9, Rebh fails to exemplify the method of forming an OLED element or display wherein the ink further comprises a colorant, a polymeric binder and/or functional additives.

Hyman teaches in Paragraph [0267], line 5 an OLED element wherein the ink (Paragraph [0268] line 10 (ink-jet printing)) further comprises a colorant, a polymeric binder and/or functional additives (Paragraph [0268], lines 1-3 (polymer and colorant) in order to create desired aesthetic and/or utilitarian effects in inventive images.(Paragraph [0266], lines 1-4).

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the colorant and polymeric binder as taught by Hyman into the method of forming an OLED as taught by Rebh in order to create desired aesthetic and/or utilitarian effects in inventive images.

Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rebh in view of Murasko et al (US PG Pub. No. 2003/0015962)..

Regarding Claim 12, Rebh fails to exemplify the method of forming an OLED element or display wherein the ink blocking layer is thicker than the OLED layer(s) subsequently deposited onto it.

In the same field of endeavor, Murasko teaches in an OLED (Paragraph [0039](Claim 4) wherein the ink block layer (Paragraph [0017] teaches printing (ink) of a blocking layer (dielectric) is thicker than (Paragraph [0031], lines 12-13 (100 μm)) the OLED layer(s) subsequently deposited onto it. (Paragraph [0034] lines 9-11 teaches that an electrode layer (105) is printed subsequently to the dielectric layer and Paragraph [0035], lines 13-16 teaches that the thickness of this layer (105) may be 2×10^{-4} inches (5.08 μm) which is thinner than the dielectric layer

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the thicker dielectric layer of Murasko into the method of fabricating an OLED of Rebh in order to provide additional insulating protection of the EL elements.

Regarding Claim 13, Rebh fails to exemplify the method of forming an OLED element or display wherein the ink blocking layer thickness is from 100 nm to 100 μm thick.

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In the same field of endeavor, Murasko teaches where the ink (Paragraph [0017] teaches printing (ink)) blocking layer (dielectric (103), Paragraph [0031], line 12) thickness is from 100 nm to 100 μm thick (Para. [0031], line 13, .1 μm to 100 μm) which falls within above range.

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the dielectric layer thickness as taught by Murasko into the method of forming an OLED as taught by Rebh in order to allow flexibility in the fabrication of the OLED layers.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rebh in view of Jagannathan (US PG Pub. No. 2003/0030706)

Regarding Claim 15, Rebh fails to exemplify the method of forming an OLED element or display wherein the wetting of the ink includes a surface treatment of the layer on which the ink is deposited.

Jagannathan teaches in Paragraph [0004] lines 1-6 wherein, during ink – jet printing (Paragraph [0003], line 1) the surface of the image forming layer should be wetted so there is no coalescence of adjacent dots.

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the wetting of the ink surface as taught by Jagannathan into the method of forming an OLED as taught by Rebh in order that there be no coalescence of adjacent dots.

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Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rebh in view of Hanson (US PG Pub. No. 2003/0035972).

Regarding Claim 17, Rebh fails to exemplify the OLED display which, in use, produces a pseudo 3-D image.

Hanson teaches an OLED display (Paragraph [0503], line 11 (electroluminescent) light source) using ink printing (Paragraph [0458]) which in use, produces a pseudo 3-D image, (Paragraph [0411], lines 1-3) that could be used as a decorative backing for an aquarium. (Paragraph [0411], last two lines).

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the color shifting inks , as taught by Hanson into the method of forming an OLED as taught by Rebh in order to create a "3-D" effect. that could be used as a decorative backing for an aquarium.

Conclusion

Examiner's note: Examiner has cited particular columns and line numbers in the references as applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DONALD L. RALEIGH whose telephone

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number is (571)270-3407. The examiner can normally be reached on Monday-Friday 7:30AM to 5:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Donald L Raleigh/
Examiner, Art Unit 2879

/Nimeshkumar Patel/
Supervisory Patent Examiner, Art Unit 2879